SUNESIS.002DV1 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Wells, et al.	) Group Art Unit Unknown
Appl. No.	:	Unknown (This is a Divisional Application of U.S. Serial No. 09/105,372)	)
Filed	:	Herewith	)
For	:	METHODS FOR RAPIDLY IDENTIFYING SMALL ORGANIC MOLECULE LIGANDS FOR BINDING TO BIOLOGICAL TARGET MOLECULES	)
Examiner	:	Unknown	

I hereby certify that this correspondence and all marked attachments are being deposited with the United States Postal Service as first-class mail in an envelope addressed to. Assistant Commissioner for Patents, Washington, D.C. 20231, on

October 17, 2001
(Date)

Ginger R. Dreger, Reg. No. Ginger R. Dreger

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

The present Preliminary Amendment is filed concurrently with the filing of a divisional application of application Serial No. 09/105,372 filed on June 26, 1998. In connection with application Serial No. 09/105,372 a Notice of Allowance was mailed on July 18, 2001 but the issue fee has not yet been paid.

Kindly amend this application in the following aspects:

In the Claims:

Please cancel claim 1, without prejudice.

Please add the following new claims:

--40. A method of identifying a small, non-oligomeric, soluble, synthetic organic ligand less than 500 daltons in size, that binds covalently to a chemically reactive group at a site of

interest on a target protein to form a target protein-ligand conjugate, comprising detecting the formation of said target protein-ligand conjugate and identifying the ligand present in said conjugate by subjecting said conjugate directly, without prior fragmentation and without liberation of said ligand from said conjugate, to mass spectrometry analysis.

41. The method of claim 40 wherein said target protein is selected from the group consisting of an enzyme, a hormone, a transcription factor, a receptor, a ligand for a receptor, a growth factor and an immunoglobulin.

42. The method of claim 41 wherein said target protein is a cytokine receptor.

43. The method of claim 42 wherein said cytokine receptor is an interleukin receptor.

44. The method of claim 42 wherein said cytokine receptor is selected from the group consisting of receptors for erythropoietin (EPO), granulocyte colony stimulating factor, granulocyte macrophage colony stimulating factor, thrombopoietin (TPO), IL-2, IL-3, IL-4, IL-5, IL-6, IL-10, IL-11, and IL-12.

45. The method of claim 41 wherein said ligand is a cytokine.

46. The method of claim 45 wherein said cytokine is an interleukin.

47. The method of claim 41 wherein said cytokine is selected from the group consisting of erythropoietin (EPO), granulocyte colony stimulating factor, granulocyte macrophage colony stimulating factor, thrombopoietin (TPO), IL-2, IL-3, IL-4, IL-5, IL-6, IL-10, IL-11, and IL-12.

48. The method of claim 40 wherein said target protein comprises said chemically reactive group without prior modification of said target protein.

49. The method of claim 40 wherein said target protein has been modified to comprise said chemically reactive group.

50. The method of claim 40 wherein said chemically reactive group is a primary or secondary amine group which forms a Schiff base adduct with an aldehyde or ketone group present on said ligand.

51. The method of claim 40 wherein said chemically reactive group is an aldehyde or a ketone group which forms a Schiff base adduct with a primary or secondary amine group present on said ligand.

52. The method of claim 50 or claim 51 wherein said adduct is treated with a reducing agent prior to said mass spectrometry analysis.

53. The method of claim 40 wherein said chemically reactive group is a thiol group, masked thiol group, or activated thiol group, which forms a disulfide group with a thiol functionality present on said ligand.

54. The method of claim 53 wherein said target protein contains or is modified to contain no more than two thiol groups.

55. The method of claim 53 wherein said target protein contains or is modified to contain no more than one thiol group.

56. A mass spectrometer comprising a target protein-ligand conjugate comprising a small, non-oligomeric, soluble, synthetic organic ligand less than 500 daltons in size, that binds covalently to a chemically reactive group at a site of interest on a target protein to form a target protein-ligand conjugate.

57. A small, non-oligomeric, soluble, synthetic organic ligand less than 500 daltons in size, that binds covalently to a chemically reactive group at a site of interest on a target protein to

form a target protein-ligand conjugate, identified by detecting the formation of said target protein-ligand conjugate and identifying the ligand present in said conjugate by subjecting said conjugate directly, without prior fragmentation and without liberation of said ligand from said conjugate, to mass spectrometry analysis. - -

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REMARKS

Prior to entry of the present Preliminary Amendment, claim 1 was pending in this divisional application. Claim 1 has been cancelled. New claims 40 through 57 have been added. Support for the new claims is throughout the specification and claims as filed, such as, for example, at page 2, lines 1-5; page 6, lines 20-21; page 5, line 20; page 8 line 14 - page 9, line 12; page 10, lines 16-24; the passage bridging pages 14 and 15; the passage bridging pages 16 and 17; the passage bridging pages 19 and 20; and page 17, lines 21-23. The new claims do not introduce new matter.

All claims pending in this application are believed to be in *prima facie* condition for allowance, and an early issuance of a Notice of Allowance is respectfully solicited. Should there be any further issues outstanding, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: Feb 17, 2001

By: _____

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